

PUBLIC EXPENDITURE AND NIGERIAN ECONOMIC GROWTH

BY

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ABSTRACT

This study assesses the impact of government expenditures on the economy (GDP) based on secondary data from 1970 to 2012. Variables considered relevant indicators of economic growth and public expenditure from literatures were used. The data were subjected to the instrumental variables two-stage least squares regression. The result showed that both capital expenditure and lagged-two capital expenditure positively and significantly impacts GDP. For the second equation, only internal debt positively impact GDP. The study thus recommends among others more budgetary allocations to public expenditures while the Public Private Partnership model was encouraged for capital projects in order to minimize corruption.

**Keywords: Capital expenditure, Recurrent expenditure, Gross Domestic
Product, Two-stage least squares**

1.1 INTRODUCTION

In time past, two main functions was attributed to the government: maintaining law and order and provision of social amenities, but according to Ofanson (2007) the functions have shifted in modern times to include attainment of full employment, maintain price stability, promote economic growth and development, maintenance of balance of payment equilibrium, and promotion of equitable distribution of income and wealth, and to achieve all these there is need for government expenditure. Amassoma, Nwosa, and Ajisafe (2011) opined that in Nigeria, government expenditure has continuously increased due to factors such as persistent rise from huge receipt in production and sales of crude oil and the increased demand for public goods such as; roads, communication, power, education and health plus also the need to ensure both internal and external security so as to avoid external invasion in the country.

In Nigeria, government expenditure has continued to rise due to the huge receipts from production and sales of crude oil, and the increased demand for public goods like roads, communication, power, education and health. Also, there is the increasing need to provide both internal and external security for the people and the nation. Despite all these, there is a mixed feeling depicting whether increasing government spending induces economic growth or not, hence, the need for this study.

Also, there is the belief that the continuous rising government expenditure may have not translated to meaningful economic growth and development since Nigeria still ranks among the poorest countries in the world and a larger percentage of her population still live on less than US\$1 per day. Furthermore, macroeconomic indicators like balance of payments, inflation rate, and exchange rate has shown that the Nigeria economy has been unstable in past years.

Therefore, from the various budgetary expenditures on security and the recent Boko Haram menace, to the budgetary allocations to capital projects and the high level of poverty and low per capita income in the country coupled with the expenditures to fund oil subsidy and the high level of corruption in the oil sector, can we say that public expenditures both present and past has impacted on the

Nigerian economy positively? This is the question this research work wants to answer.

2.1 LITERATURE REVIEW

Public expenditures are divided into capital and recurrent expenditures (Modebe, Regina, Onwumere, and Imo, 2012). Capital expenditures are those expenditures used in providing capital goods and services to the populace for example building of railway, dam, etc. Recurrent expenditures are those incurred on either day to day basis, or weekly, monthly, or even yearly basis and they include administration, internal security expenses, wages and salaries of public workers.

According to Isedu (2002), one way capital expenditure impacts economic growth is the creation of employment. The multi-hydra problem of unemployment in the economy is reduced to the barest minimum. Another way it causes economic growth is the re-allocation of resources to every sector of the economy. Resources are moved from the surplus areas to the deficit areas where they are needed with, thus opening up vast opportunities which will improve the citizens of the country.

2.1.1 Influence of Gdp on Capital Expenditure

Gross Domestic Product can also impact capital expenditure. Adolph Wagner's law of increasing state activity explains it by stating that "as the economy develops overtime, the activities and functions of government increases", (Wagner, 1890). This law means that growth in the economy causes public sector expenditures to expand. It further suggests that public expenditures are endogenous to economic development.

In general terms, past capital projects maintained plus new ones that will add to the economy are established in order to improve more on the economy, Ofanson (2007). Abandoned projects cause set-backs in the economy as problems such as unemployment, wastes, and so on reoccurs, (Abu and Abdullahi, 2010). Insecurity also manifests as street urchins, kidnappers and armed robbers uses various abandoned government building as their meeting place to carry out their nefarious activities. So, a growing economy can improve the lots of capital expenditure projects in such economy.

This study thus uses the two-stage technique of estimation to examine the impact of capital expenditure on the economy since there is a simultaneous relationship between the economy and capital expenditure due to the argument above.

2.1.2 Public Debt and the Nigerian Economy

This is defined as the accumulated total of government borrowing from either the private sector of the country or from abroad, (Mayo, 1996). Public debt can be used to regulate the economy through variations in the volume, composition, and yield rates of such debt, (Bhatia 2009). A long-term maturity composition of public debt will reduce total liquidity in the economy while in opposite direction, a short-term maturity will increase liquidity. Public debt is used as a vital tool by the government to control exchange rate, inflation, etc. since it forms a major part of the total credit supply of the economy. Public debt is a vital alternative source of borrowing. The appropriateness of public borrowing depends on the purpose for which the fund will be used and the conditions the funds are subjected to.

According to Isedu (2002), government sometimes borrows internally to fund capital expenditure programmes and this statement will be used for this study as internal debt will form part of the model.

2.1.3 Exchange Rate and the Economy

Exchange rate is the price of one country's currency in terms of other countries' currencies. It is the numerical value of a country's domestic currency at any given time in relation to countries in which the home country has foreign or trade links, (Nwankwo, 1980). It is used as an instrument for economic management and is also an important macroeconomic indicator used for assessing the overall performance of the economy. A shift in exchange rate will have effect on certain economic variables such as interest rate, supply, (Okoduwa, 1997), etc. This means that exchange rate is a strong determinant necessary for any economic well-being of Nigeria. In a market-friendly environment, exchange rate must respond to the market forces of demand and supply.

2.1.4 External Reserve and the Nigerian Economy

Effective management of foreign exchange reserves is one of the major macroeconomic objectives of countries like Nigeria. This is against the background of rapid rise and accumulated challenges currently facing many emerging economics, especially oil producing countries (CBN, 2002). The components of foreign reserves include monetary gold, reserve position at the

International Monetary Fund (IMF), holding of special drawing right (SDRs) and foreign exchange which are convertible currencies of other countries (CBN, 2002). Essentially, external obligations have to be settled in foreign exchange. Therefore, the stocks of reserves become important as a source of financing external imbalances.

2.2 Theoretical Framework

According to Musgrave (1959), the demand for public services tend to be low in developing countries due to low per capita income as all income will be devoted to satisfying primary needs (food, clothing, and shelter). As per capita income increases, the demand for public goods increases too thus spanning the government to spend. Finally, at high level of per capita income in developed countries, the rate of public sector growth tends to fall as the more basic wants are satisfied. The assumption that natural forces can cause the changes is phantasmagorical, as giving the same natural factors to two different countries, one might develop and the other might not. This is known as the Musgrave theory.

2.3 Empirical Framework

Several works have been done by different researchers using different techniques on the impact of public debt on the Nigerian economy.

Onakoya and Somoye (2013) used the three stage least squares and the macro-econometric model of simultaneous equations to look at the impact of public capital expenditure on different sectors of the Nigerian economy. They concluded that public capital expenditure impacts positively on the Nigerian economy.

Muritala and Taiwo (2011) used the Ordinary Least Squares (OLS) technique to see how public expenditure causes growth in the real GDP. The result also proves a positive relationship between real GDP and recurrent and capital expenditure which is consistent with the Keynesian theory.

Also, Nurudeen and Usman (2010) used time series data from 1977 to 2008 to analyze the impact of government expenditure on economic growth in Nigeria. They concluded that government total capital expenditure has negative effect on economic growth.

Furthermore, Ighodaro and Okiakhi (2010) examine government expenditure using on general administration, community and social services in Nigeria. They applied the Granger causality test and used time series data for 46 years ending

2007. The results showed that government expenditure has negative impact of on economic growth.

Moreover, Akpan (2005) also used the components of government expenditure and opined that no significant relationship exists among some government components and economic growth in Nigeria.

Aregbeyen (2007) while carrying out his study concluded that a positive and significant relationship exists between capital expenditure and economic growth but a negative relationship between recurrent expenditure and economic growth.

Modebe et al (2012) examined the impact of government capital and recurrent expenditure on the Nigerian economy from 1987 to 2010 using three variables multiple regression model. While capital expenditure had a negative and non-significant impact on the economy, recurrent expenditure had a positive and non-significant impact on the same economy.

Amassoma, Nwosa, and Ajisafe (2011) used the error correction model to study the impact of government expenditure disaggregated into agriculture, education, health, transport, and communication on the Nigerian economy with data from 1970 to 2010. They concluded that only agriculture expenditure had a significant impact on the economy. Others had insignificant influence on economic growth.

Oluwatobi and Ogunrinola (2011) also studied the impact of capital and recurrent expenditure on education and health (human capital) and their effect on economic growth using Augmented Solow model. They discovered that there is a positive relationship between recurrent expenditure on human capital and level of real output but a negative relationship between capital expenditure and the level of real output.

Ogujiuba and Adeniyi (2004) examined the impact of government education expenditure on economic growth. Their result showed a statistically significant positive relationship between economic growth and recurrent expenditure on education, while capital expenditure was wrongly signed and not significant in its contributions.

Loto (2011) studied the effects of government expenditures on security, health, education, transport, communication, and agriculture on the economy using error correction test. He opined that expenditures on agriculture negatively impact the economy. Education was both negative and non-significant to the economy.

Expenditures on health positively impacted the economy while security, transport and communication though positively were non-significant to the economy.

Finally, Fajingbensi and Odusola (1999) found the contribution of recurrent expenditure to growth as insignificant.

Despite all these studies, none studied the impact of past capital project on the economy hence this is the gap in literature that this research study wants to find out.

3.0 MATERIALS AND METHODS

3.1 Sources of Data

In carrying out this research work, secondary sources of data was used. The sources include Central bank of Nigeria's statistical bulletins, Debt Management Office publications, journals, etc.

3.2 Two Stage Least Squares

A model of the two-way cause is called a simultaneous-equation model and this creates a two equations. The first equation is the original equation derived from the economic theory to be proved. It is made up of the endogenous variable, the exogenous variables, and the error term.

From the model to be used in this study, the original linear equation is:

$$\text{GDP} = a_0 + a_1 \text{CAPX} + a_2 \text{RECX} + a_3 + \text{CAPX}_{-1} + \text{CAPX}_{-2} + U_1$$

GDP (Gross Domestic Product)

CAPX (Capital expenditure)

RECX (recurrent expenditure)

CAPX₋₁ and CAPX₋₂ (lagged one and lagged two capital expenditure representing past capital expenditures)

U₁ (error term).

The second equation involves making one of the exogenous variables an endogenous variable and expressing it as a function of all other variables including instrumental variables.

Therefore, from the arguments of Isedu (2002) that government sometimes borrows internally to fund capital expenditure programmes in order to improve the economy, the second equation is:

$$\text{CAPX} = a_0 + a_1 \text{GDP} + a_2 \text{IDBT} + U_2$$

CAPX (capital expenditure)

GDP (gross domestic product)

IDBT (internal debt)

U_2 (error term).

The two-stage least squares is one of the methods or techniques for solving a simultaneous equations model. It aims as far as possible the elimination of the simultaneous-equation bias, (Koutsoyiannis, 2003). Both equations will be regressed alongside instrumental variables EDBT (external debt), IDBT (internal debt), ERTE (exchange rate), RSVE (external reserve) and RSVE₋₁ (lagged-one external reserve) to get a transformed function.

4.0 RESULTS, ANALYSIS AND DISCUSSION

4.1 Phillip-Perron (Unit Root) Test

Table 4: Result of Phillips-Perron unit root test at first difference, trend and intercept:

Variables	Phillips-Perron test statistics	5% Critical Values	Remark
LGDP	-5.830169	-3.529758	Stationary
LCAPX	-5.861352	-3.529758	Stationary
LRECX	-4.478232	-3.529758	Stationary
LEDBT	-3.708858	-3.529758	Stationary
LIDBT	-4.812721	-3.529758	Stationary
ERTE	-6.172800	-3.529758	Stationary
LRSVE	-3.937257	-3.529758	Stationary
LCAPX ₋₁	-5.647139	-3.529758	Stationary
LCAPX ₋₂	-5.573291	-3.529758	Stationary
LRSVE ₋₁	-3.732149	-3.529758	Stationary

Source: Author's computation using Eviews 7 (2014)

From the table above, it can be seen that the log of all the variables were stationary at first difference (5%) trend and intercept.

4.2 ORDER IDENTIFICATION TEST

The model must satisfy the order condition which is very vital if one wants to use the two-stage least squares and it must either be exactly identified or over-identified. The formula for the identification order satisfaction is:

$$(K-M) \geq (G-1)$$

Where K = number of total variables in the model.

M = number of variables in a particular equation.

G = number of equations.

From the first equation,

$$GDP = a_0 + a_1 CAPX + a_2 RECX + a_3 + CAPX_{-1} + CAPX_{-2} + U_1$$

$$K = 6, M = 5, G = 2,$$

$$(K-M) \geq (G-1) (6-5) = (2-1)$$

$$1 = 1 \text{ [Order condition satisfied]}$$

$$\text{From the second equation: } CAPX = b_0 + b_1 GDP + b_2 IDBT + U_2$$

$$K = 6, M = 3, G = 2$$

$$(K-M) \geq (G-1), (6-3) \geq (2-1), 3 > 1 \text{ [Order condition also satisfied]}$$

4.3 RESULT AND DISCUSSIONS

For the first equation,

Dependent Variable: LGDP

Method: Two-Stage Least Squares

Date: 07/17/13 Time: 12:59

Sample: 1970 2012

Included observations: 43

Instrument specification: LEDBT LIDBT LERTE LRSVE LRSVE2

Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	118234.3	43505.49	2.717686	0.0100
LCAPX	1.044524	0.506865	2.060754	0.0466
LRECX	-0.187550	0.458169	-0.409347	0.6847
LCAPX1	-1.259572	1.153942	-1.091538	0.2823
LCAPX2	1.598690	0.879532	1.817660	0.0774
R-squared	0.481638	Mean dependent var		268263.9
Adjusted R-squared	0.424042	S.D. dependent var		214002.1
S.E. of regression	162410.2	Sum squared resid		9.50E+11
F-statistic	15.00196	Durbin-Watson stat		2.074252
Prob(F-statistic)	0.000000	Second-Stage SSR		2.49E+11
J-statistic	0.004962	Instrument rank		6

Prob(J-statistic) 0.943844

- (a). **Coefficients:** The slopes of the coefficients of capital expenditure and lagged-two capital expenditure is positive meaning it has a positive relationship with GDP while the slopes of recurrent expenditure and lagged-one capital expenditure carry a negative sign thus having an inverse relationship with the economy.
- (b). **Goodness of Fit Test (R^2):** The R^2 is equal to 0.48 that is all the variables explain 48% of the total variation in gross domestic product.
- (c). **Test of Significance:** The probability (prob.) value will be analyzed to test the significance of each exogenous variable in explaining the endogenous variable (GDP). The value must be less than 1% for it to be significant. Looking at the probability values from the result, both capital expenditure and lagged-two capital expenditure are significant in explaining gross domestic product as their probability value is less than 1%. The reason for this is that capital projects lead to employment generation and add value to the economy.

For the second equation

Dependent Variable: LCAPX

Method: Two-Stage Least Squares

Date: 03/31/14 Time: 09:54

Sample: 1970 2012

Included observations: 43

Instrument specification LEDBT LIDBT LERTE LRSVE LRSVE2

Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.119251	1.754912	-0.637782	0.5273
LGDP	0.173034	0.277815	0.622841	0.4370
LIDBT	0.829419	0.146883	5.646789	0.0415
R-squared	0.937852	Mean dependent var		10.35375
Adjusted R-squared	0.934665	S.D. dependent var		2.576108
S.E. of regression	0.658471	Sum squared resid		16.90979
F-statistic	286.2333	Durbin-Watson stat		1.510458
Prob(F-statistic)	0.000000	Second-Stage SSR		23.87701
J-statistic	13.36742	Instrument rank		4
Prob(J-statistic)	0.000256			

- (a.) **Coefficients:** The slopes of the coefficient of gross domestic product and internal debt carry positive signs to show a positive impact on capital expenditure.
- (b.) **Goodness of Fit Test (R^2):** The R^2 is equal to 0.93 that is 93% of the endogenous variable (Capital expenditure) is explained by gross domestic product and internal debt.
- (c.) **Test of Significance:** Looking at the probability values from the result, only internal debt is significant in explaining capital expenditure as its probability value is less than 1%. This thus proves the fact that government borrowing internally to fund capital projects positively impacts the economy.

5.0 RECOMMENDATIONS

Based on the findings in section four above, the following recommendations are advised:

First, the government should ensure that adequate budget provision are made for both past and present capital expenditures since they impact the economy positively.

Second, the introduction of Public Private Partnership for capital projects should be encouraged where there are limited funds in the hands of the government. This will ensure that more projects that will impact the economy are established.

Third, the government should try as much as possible to maintain and keep both past and present capital projects in good working conditions as they are a necessity for economic growth.

Fourth, some funds from internal debt should be used to finance capital expenditure projects while such projects should be able to generate adequate funds to pay back and service the debt.

Finally, there is the issue of corruption to tackle. The government can tackle this menace by ensuring that there is transparency in the whole budgetary process.

FURTHER AREAS FOR RESEARCH

- i. An empirical study on Public private partnership on capital projects in Nigeria.
- ii. Impact of past capital projects on the Nigerian economy. (The periods should be projects from the last three years and above)

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